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On the Role of Life Stories in Vocational Choice

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Abstract

We applied data mining techniques for investigating vocational choice and strength of motivation of teacher candidates in Hungary. To that end, life stories of students of teacher training program have been analyzed and coded. One aim of our research is to point out that data mining methods supported by data visualization are appropriate for multi-dimensional sociological and educational research. We assume that certain samples and predictive momentums in life stories are relevant for the interest towards a career in occupational personality. Also we assume that young persons' knowledge of their own personal competencies influence their career choice. Our research methodology combines the application of mixed methods with narrativity in a sociological-psychological-educational field.

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1. Introduction and theoretical framework

We applied data mining in Educational Sciences for investigating *vocational choice* and *strength of motivation* of teacher candidates in Hungary. To this end, life stories of students of teacher professions have been analyzed. Some of our obtained results are new, others confirm previous findings.

The time spent in higher education is an intense period in the development of young people, which, at the same time, urges them to cope with new challenges. During the university studies, the development of personality and of professional competence takes place simultaneously. Decision of the career choice usually happens at the moment of applying to university, but sometimes a person changes his/her mind after beginning his/her university studies. In other cases, university training does not deepen or facilitate later commitment, or the student drops out. One source of these can be that we do not know enough the types of students whom we face at the beginning.

We would like to foster the *commitment* for the profession of the students in teacher training by developing dimensions of self-discovery from the point of narrative identity, hence contributing to the success of the socialization process. In line with scientific announcements, our intentions can provide corrections in the system of *career development advice*. According to other researchers' standpoint, studies have scarcely been conducted to measure students' satisfaction with life in connection with career building.

We see the explosion of autobiographies and writing one's life story in social sciences. Psychologist Jerome Bruner writes that "it is through narrative that we create and re-create selfhood..." (Webster & Mertova, 2007)

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Telling our stories do not merely document who we are but it helps to make us who we are. This is an important question for human being. Narrative inquiry is human centered in that analyses life stories and also reveals holistic views that give stories valuable potential for research.

Our interest lies in new scientific paradigms such as postmodern discourse, qualitative and mixed methods of research, and the connection between narrative and pedagogy. We tried to establish connection between these new approaches, which will hopefully have an improving effect on our job: educating teachers. We might say, we are attempting to put down in writing a synthesis of paradigms along with their pilot of applicability within the scope of pedagogy.

The secondary aim of our research is to point out that the data mining methods supported by data visualization are principally appropriate for multi-dimensional pedagogical research, such as analyzing life stories to gain knowledge for career choice. A considerable methodological advantage is that data mining algorithms can automatically find connections; thus in many cases setting up hypotheses is not necessary. However, we have formulated some.

- Texts about life stories can be successfully examined with mixed research methods supported by data mining and data visualization devices. This relatively new research methodology is able to reestablish already published results, and it is also able to explore some new connections. That is to say, previously not predictable results and relationships may emerge from the net of texts.
- We assume that recurrent elements in life stories, predictive momentums lie behind the interest towards a career in education or occupational personality.
- We assume that the young person's full knowledge of their own personal competencies influence their career choice.

The figure 1 below summarizes the theoretical framework of our research.

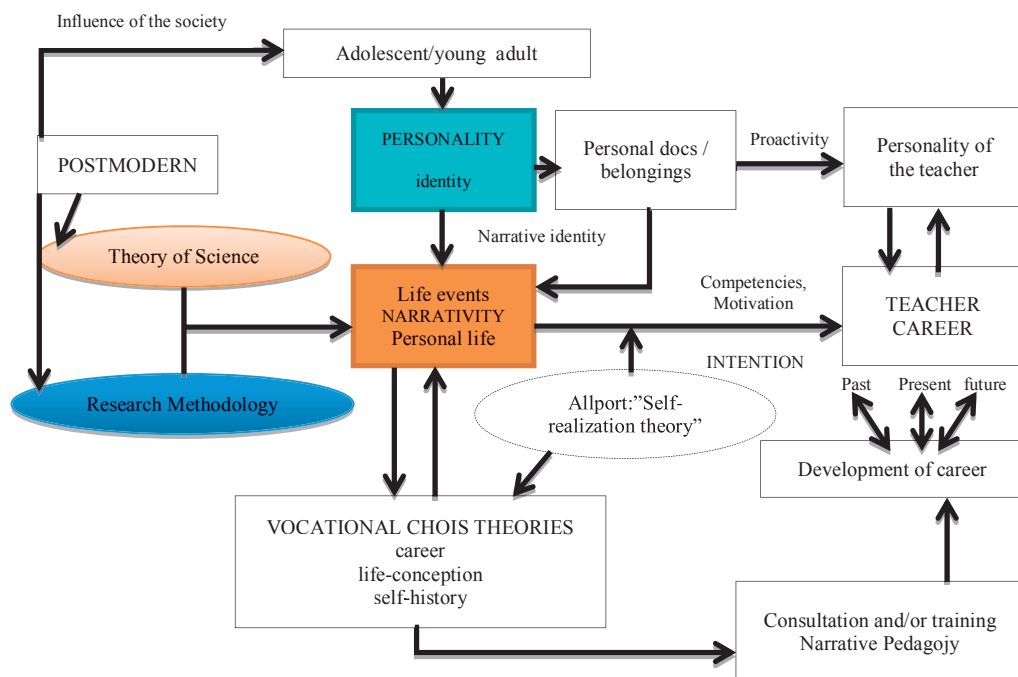


Figure 1. Theoretical framework

2. Methods and data sources

Our chosen method puts our specific qualitative (hermeneutic) and quantitative research with reliable predictions in the focus of the issue of career choice. The presented results help in making further decisions in the improvement of teacher training. Career choice is not only personal, but also a social issue. Improving the quality of teacher training has always been a major issue in education policy. A closer and necessary connection between education and other disciplines is being outlined in this field.

One peculiarity of our research is its methodology, because the number of researches that are conducted in the field of education using mixed methods is relatively low, especially in Hungary. The method we used was supported by DataScope data mining software that uses not only the general algorithms used by other data mining programs, but also heavily invokes and uses data-visualization components and visual queries. Data-visualization enables the easily comprehensible visual representation of the correlations found between large amounts of data and supports the data mining algorithms by showing the elements highlighted by the user not only on the graph where they have been highlighted, but on all of the other graphs too; thus making the data quickly examinable and analyzable. Using this technique, we can guess which variable sets may carry relevant relationships, and we can run the data mining algorithms on these variables. Data visualization thus helps data mining algorithms by exploiting human intuition and parallel vision.

International studies have pointed out the connection between narrative, identity status and meaning-making (McLean & Pratt, 2006). Life story is a useful source in identifying personal development; moving on, certain trends of development can be observed in different stages of life.

Concerning our data sources, we gave students a set of keywords (such as family atmosphere, conflicts, relationship with their brother/sister, etc.) and asked them to write their related life story. Then we carefully read and analyzed 51 of them, all of which were 6-18 pages long. Then we set up a coding/attribute system in which the information in the stories that were considered relevant by us with respect to our investigated phenomenon was retrieved from the text and was inputted into a table. Columns of the table were:

- Gender, age, marital status of parents, degree of the mother and father, importance of the grandpa and the grandma, place of childhood, cardinality of birth order among sisters/brothers, number of siblings, communication skills, empathy, sensitivity, religious affiliation, optimistic/pessimistic nature, most important example, diligence, degree of motivation to become a teacher, has he/she known a teacher in his/her close environment, degree of being contented, creativity, is she/he friendly, is she/he influential to his/her environment, kindness, sociability, hopeful, playful, target and future orientation, conflict resolving skills, artistic sense, mother-child relationship according to her/him, how many times does he/she mention his/her mother, evaluation of the mother, omnipotence feeling, judgment of childhood, importance of the love relationship, was she/he a wanted child, redemption, self-evaluation.

At the beginning of our research we had no preconceptions as to what kind of relationships would the momentums of life stories show. We systematically reviewed the relation of the educational motivation to the other attributes. Particular attention was paid in not leaving out any matter that might have had any effect to our investigated phenomenon. Then the information in the table was investigated by data visualization driven data mining methods. In particular, the software built decision trees, found correlations between pairs and triples of attributes.

Below we sum up the occurrences of important life events extracted from 51 life stories (Table 1).

Table 1. Important life events

Types of important life events	Examples	Number of occurrences
Achievements	competencies, successes	87
Primal experiences	birth, death, illness, divorce in family	63
Relationships	love, friendship, ideal	54
Conflicts	failure, disappointment	31
Awakenings	to vocation, to role in life, to reality	24
Spiritual experiences	religion	6

3. Results and discussion

In our opinion, the method holds numerous untapped opportunities, since instead of the educational motivation field in the table any other field can be investigated. Content analysis is also a suitable method in the field of vocational choice. The prognostic factors of career development emerge from the predictor factors belonging to the social dimension: socialization, family, emotional harmony, motivation, sociability. In our research, those examined categories turned out to have positive correlation with the educational motivation field. Those features have been described as predictive factors also by other researchers. However, these factors may be generally valid in young people's career motivation, in which the career in teaching is a section of all university training.

Our second assumption, namely, that similar momentums in life stories influence the interest in a career in education, has also proven to be true. The results of the examination empirically justified that the narrative elements manifested in the life story model are in close relationship with the individual's identity status and with the motivation in career choice.

In case of young teacher candidates, the most important integrative outer and inner forces from the point of view of narrative identity are the following:

- Self-knowledge,
- satisfaction with life,
- judgment on their own childhood,
- relationship between mother and child,
- being target and future oriented, or to have hopeful expectation of the future,
- conflict resolution,
- adaptability,
- romantic relationship.

Among the attributes of the occupational personality there are those that refer to the inner attributes of the personality, and those ones arising from the outer, physical environment. The following groups have motivation to a career in teaching:

- Village residents,
- those urban residents, who are not pessimist,
- single children,
- those who has a conforming relationship to authority, or who are consensus-building persons.
- those who are strongly motivated to become teachers share the following features:
- their social abilities are outstanding,
- their communication competences are outstanding,
- they have a strong future-orientation, and are satisfied with their lives,
- they have firm self-knowledge.

Referring to Holland's (1973) psychodynamic theory, the idea of an "occupational personality" has been defined in a different way. According to one of his hypotheses, people choose a career that enables them to practice their own and recognized competences. As stated by Holland, self-knowledge and self-understanding have a great role in the choice of occupation. The formation of the previously mentioned types characterized by Holland is based on the assumption that individuals working in similar occupation fields also have similar personality-structures. Their responses to environmental challenges are not different to a great extent either. Mentioning some of the theses of Super's and Nevill (1984) career development model, for example the parental homes, the values of the home, the world of the accessible professions, all influence the career. The development in the life stages of the individual can be controlled, for which the ability of self-definition is indispensable. Professional development is in a close relationship with self-definition, which is particularly interesting, since at the age of 20-24, the individual is going to realize and then test self-definition in the professional field.

In Hungary, within the scope of competence-based teacher training, it is of utter importance that we open new seminars that strengthen young people's self-knowledge, make them acquire strategic techniques in real school-life situations, and support identity development, even with the reconstruction of their own stories. Content analysis

together with data mining techniques can greatly contribute to reveal the motivational degree and to aid the proper career choice of young people. In our opinion almost all kind of quality of school education is determined by the quality of qualification of teachers. In order to make teacher training more adequate we should get to know deeper our students, and the teacher training has to be adjusted accordingly. The curricula of teacher training thus becomes respondent to the demands of the society and industry.

Summing up, our results show that integrative outer and inner forces are self-knowledge, satisfaction with life, judgment on their own childhood, relationship between mother and child, being target and future oriented, or to have hopeful expectation of the future, conflict resolution, adaptability, and romantic relationship. According to Holland's psychodynamic theory, people choose a career that enables them to practice their own and recognized competences. The self-knowledge and self-understanding have a great role in the vocational choice. Our results also support Super's and Nevill's career development model. Content analysis together with data mining techniques can greatly contribute to reveal the motivational degree and to aid the proper career choice of young people.

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